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BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

NEWS LETTER

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AGRICULTURAL APPROPRIATION BILL HAS PASSED THE HOUSE

The bill making appropriations to the Department for the fiscal year 1936 passed the House of Representatives on March 16 and has been referred to the Senate for consideration. In its present form the bill appropriates $7,778,921 for the Bureau of Entomology and Plant Quarantine, part of which will be immediately available if the bill becomes law. Two large items submitted as supplemental budget estimates are: $2,500,000 for a cooperative campaign for control of the chinch bug; and $480,000 for screw worm control, $55,000 of which will be allocated for investigations, the remainder to be used in a cooperative control campaign.

The House bill provides increases of $69,000 over the estimates submitted by the Budget. These increases are: $1,000, which is to be immediately available, for work on flower-spot disease of azalea; $33,000 for investigations on insects attacking tobacco in the field; $3,000 for enlarging the work on bee culture on the Pacific coast; $18,000 to the item "Control Investigations", for investigations on the entomological phases of the development of insecticides from tobacco by-products; and $14,000 to the "Insecticide Division", for chemical investigations on the same subject.

Included in the bill are appropriations for the following control activities, which during the present fiscal year are being financed solely from funds supplied from emergency appropriations: Gypsy and brown-tail moth control, white pine blister rust control, and barberry eradication.

FRUIT INSECT INVESTIGATIONS

Oriental fruit moth bait trap work transferred to Moorestown.--The work with baits and bait traps for oriental fruit moth control, which has been under way at Cornelia, Ga., since 1930, is being transferred to Moorestown, N. J. Northern Georgia is at the extreme southern limit of the range of the oriental fruit moth as a serious factor in peach production, and the infestations the last 2 years have been too light for satisfactory work. The fruit moth infestations in New Jersey, although somewhat reduced by parasites from the high level which existed a number of years ago, are considerably greater than those in the Cornelia section the last 2 years. The transfer of the fruit moth work to Moorestown will give it the benefit of the background of experience with bait materials that have been intensively investigated for the control of the Japanese beetle, and will permit closer contact with chemists. Wm. P. Yetter, Jr., will continue in charge of the bait-trap project.

Dried fruit beetle in grape pomace.--Dwight F. Barnes, of the dried-fruit insect laboratory at Fresno, Calif., has completed the examination of a second series of samples of fermenting grape pomace. As in the case of pomace sampled in the fall of 1934, the samples taken in winter showed that the peak of population of adults of the dried fruit beetle was reached 27 days after the pomace was deposited in a heap out of doors. In both cases the greatest abundance of larvae was found from the 8th to the 17th day after the pomace was exposed to infestation.

Winter mortality of larvae of raisin moth in California.--Samples of soil containing hibernating larvae of the raisin moth, collected by Heber C. Donohoe, Fresno, Calif., on January 16-21 and February 18-20, showed that mortality of larvae in dry soil averaged about 25 percent during both periods. The mortality of larvae in wet soil increased from about 34 percent in the first collections to about 68 percent 1 month later.

DATE SCALE CONTROL

Inspection results in California and Arizona.--During the month of February pruning and inspection were carried on in neglected date plantings in the Webb Subdivision in the Coachella Valley, Calif. Several plantings were found heavily infested in this subdivision in 1929. Systematic inspection and treatment were begun at once and the last infested palm was found in September 1931. Most of the plantings are now well pruned and can be inspected efficiently. Palms that are bushy with offshoots and excess foliage are being pruned and the removed foliage is being inspected. After being pruned the plantings are carefully inspected from ground and ladders. All leaf bases on previously infested Persian and seedling palms are cut back and examined. This will probably be the final inspection of these plantings. In the Imperial Valley 1,508 palms were inspected in the area surrounding the last heavy infestation. No scale was found. In Yuma, Ariz., 955 inspections of palms were made during the month. This area also is being covered carefully and all necessary pruning, leaf-base work, and digging are being done as the work progresses.

CEREAL AND FORAGE INSECT INVESTIGATIONS

Migratory grasshoppers hatching in southern Arizona.--V. L. Wildermuth, Tempe, Ariz., reports as follows: "E. E. Russell of this laboratory took the first newly hatched nymph of Melanoplus mexicanus Sauss. on February 28 at Chandler, Ariz. Only three specimens were taken in a half-hour sweeping on the John Anderson place where M. mexicanus was extremely numerous last year, and only two nymphs were taken on our old experimental farm near the same place. This year's first date of hatching is 3 weeks later than the first hatching noted last year--February 6. On the early date last year many hundreds of nymphs were taken, whereas this year only a few could be found. It is quite likely that eggs will be hatching rapidly this week, as a heavy rain occurred on March 2 and 3."

Western spotted cucumber beetle scarce in western Oregon.--T. R. Chamberlin, Forest Grove, Oreg., reports that Diabrotica soror Lec. has been very scarce in the fields during the month. As reported earlier, none was found in the Forest Grove hibernation cache in December. On February 19 a thorough examination was made of the Rickreall, Oreg., cache, where in February 1930 these beetles were congregated in millions, but not a single living beetle was found. Goats are now running in this area and the soil in the seepage spots where the beetles were most concentrated in 1930 is trampled and shows few signs of new growth. The character of the vegetation had changed considerably in appearance since 1930, possibly on account of a series of drier autumns, and these conditions may have been in part responsible for the abandonment of the cache by D. soror. In clumps of reeds in this area, only three Diabrotica were found and these had been killed by a fungous disease.

Coccinellid species found in valley cache in western Oregon.--Mr. Chamberlin also states that a small hibernation cache of coccinellids was found in clumps of reeds near Rickreall, Oreg. Most of these beetles appeared to be Hippodamia 5-signata obliqua Casey (H. ambigua auct.) although some were spotted and a few others were typical H. convergens Guer. As H. 5-signata obliqua, in the past, has been found to enter caches only on high, bald hills, and the Rickreall cache was more typical for H. convergens, a study was made of the male genitalia of samples from the Rickreall cache. While the greater number of these beetles resembled H. 5-signata obliqua in general appearance, they were in fact H. convergens.

Cultures of hyphomycetous fungi retain viability for many months.--According to L. P. Rockwood, Forest Grove, subcultures from old cultures of hyphomycetous forms of entomogenous fungi showed that these old cultures had retained their viability for more than a year in several cases. This was particularly true for cultures on potato. Comparatively recent cultures of some of the same fungi on salmon appeared to have been rendered sterile by a greasy exudate from the culture media. The following are examples of long-continued viability: Beauveria globulifera (auct.) potato culture of May 10, 1933, still viable on February 8, 1935; Spicaria gracilis Petch potato culture of March 23, 1933, still viable on January 28, 1935; Spicaria prasina (Saw.) potato culture of September 1, 1933, still viable on January 28, 1935; Metarrhizium n. sp. (drab) potato culture of June 29, 1933, still viable on February 8, 1935.

Sugarcane borer infestation in varieties of cane.--T. E. Holloway and W. E. Haley, of the Houma, La., laboratory, report the following borer infestations as a result of examinations made in Bureau of Plant Industry replicated variety test fields of sugarcane at Houma during the 1934 harvest season.

Variety	Stalks Examined	Stalks Bored	Joints Total examined	Joints Bored
	Number	Percent	Number	Percent
P.O.J. 36 M----------	1,600	37.3	21,084	4.8
Co. 290------------	2,780	41.2	38,747	5.9
C.P. 807------------	2,800	49.4	45,440	6.1
C.P. 28-19----------	1,560	51.4	22,552	6.9
Co. 281------------	2,920	43.8	34,679	7.1
C.P. 28-11----------	480	59.1	6,500	10.3
P.O.J. 234----------	1,720	62.9	23,165	11.9
C.P. 29-320---------	120	81.6	1,773	13.6
C. P. 29-291--------	120	86.6	1,791	16.1
P.O.J. 213----------	1,600	78.1	20,447	20.6
D. 95---------------	80	93.7	1,177	22.7
Total-----------	15,780	Av. 51.36	217,355	Av. 8.5

JAPANESE AND ASIATIC BEETLE INVESTIGATIONS

Decomposition of derris.--Experiments conducted by L. D. Goodhue, Moorestown, N. J., showed that derris exposed for 96 hours at a distance of 12 inches from a 300-watt clear glass mazda light did not decompose enough to be detected. However, where derris is exposed to a quartz mercury vapor arc the rate of decomposition is very rapid at first, but finally decreases until a point is reached where the material decomposes very slowly. At 104° F. (40° C.) the rate of decomposition is about twice as fast as it is at 68° F. (20° C.). Mixtures of derris with 15 percent lampblack and with 15 percent titanium dioxide were exposed at the same time to this light and the quantity remaining was determined at intervals by the colorimetric test of Gross and Smith. Lampblack gives more protection than does titanium dioxide, as shown below.

Pigment	Derris remaining after exposure of-- 2.0 hours	6.5 hours	12.0 hours	24.0 hours
	Percent	Percent	Percent	Percent
Lampblack-----------	70	60	60	50
Titanium dioxide---	50	45	40	30

Mixtures of derris with 15 percent of the following pigments were exposed to 45 hours of sunlight when snow covered the ground. The temperature was below 32° F.

Pigment	Derris remaining
	Percent
None	12.0
Titanium dioxide	4.0
Aluminum metal	5.5
Lampblack	17.0

Some experiments are in progress using pigments which have been dispersed in blown fish oil before it was emulsified for use as a sticker. By using a colored sticker the derris particles are practically coated with a paint. The results which follow show the lampblack to be of value in preventing the decomposition of derris.

Pigment	Derris remaining after 3 days of sunshine
	Percent
None	17
Titanium dioxide	25
Lampblack	55

Stickers for lime spray.--A report completed in February by J. W. Lipp, Moorestown, on stickers for lime, is summarized as follows: Gum arabic, glue, oleic acid, stearic acid, blown castor oil, peanut oil, olive oil, perilla oil, boiled linseed oil, "summer oil", flour, and aluminium sulphate were tested as stickers for hydrated lime. The best results were obtained with fish oil and with aluminium sulphate.

Attractants for Asiatic garden beetle.--During the month a report by F. W. Metzger, Moorestown, entitled, "Preliminary Tests with Attractants for the Asiatic Garden Beetle", was completed. The report is summarized as follows: The 43 materials tested were vaporized from a bottle by means of a wick, the bait equipment being placed inside the cylinder of a Japanese beetle trap. Unbaited traps were used as checks, as the beetle is apparently attracted to such devices by the white baffle. Rose geranium oil, eugenol, and tansy oil were definitely attractive to the beetle and further tests with these substances appear advisable, especially in connection with light traps.

Method of estimating population of Japanese beetle larvae in the field.--A paper by W. E. Fleming and F. E. Baker, Moorestown, entitled, "A Method for Estimating Populations of Larvae of the Japanese Beetle in the Field", was completed during the month, and is summarized as follows: An investigation was undertaken in 1934 to determine a reliable method for estimating the population of Japanese beetle larvae in the field. The number of larvae in each square foot of four 2,500-square-foot plots was determined and the results were used in estimating the true averages in each plot by different methods. The square-foot unit was found to be the most accurate for estimating the population. As the size of the sampling unit was increased, the error became progressively larger. The size and not the shape of the sampling unit was the modifying factor. The error of the estimate is influenced to some extent by the density of the population. It is possible to estimate a dense population more accurately than a sparse one. It is recommended that in estimating the larval population a minimum number of 25 square-foot units uniformly distributed constitute a sample from plots containing less than 2,500 square feet, and in larger areas the units be spaced not more than 10 feet apart. It is suggested that the larval population can be estimated most accurately with a minimum of labor in large areas covering several acres by estimating the number of larvae in 2,500 square-foot plots in representative portions. By proper sampling it is possible to obtain a very reliable estimate of the larval population in a given area.

JAPANESE BEETLE CONTROL

Nurseries resume shipments.--With generally favorable weather prevailing, activities in nurseries and greenhouses in the southern part of the Japanese beetle area were resumed in February. Over 200,000 plants were certified in New Jersey for shipment to nonregulated points. This exceeds the approximately 100,000 certified in February 1934 and 72,000 in January of this year. Dahlia growers moved large quantities of certified tubers and clumps. Toward the end of the month, quantities of rooted dahlia cuttings were presented for certification.

Azalea fumigation experiments.--Experiments conducted in cooperation with the Japanese beetle research laboratory to develop a method of ridding potted azaleas of Japanese beetle infestation by fumigation with paradichlorobenzene have met with a very favorable response from a number of large azalea growers in New Jersey. Preliminary results indicate that the hardy varieties of azaleas come through the treatment satisfactorily, although the treatment is not entirely satisfactory for the tender varieties.

Adult Japanese beetles appear in greenhouses.--Adult Japanese beetles began to appear in fair numbers in the heavily infested greenhouses of several rose growers in the suburbs of Philadelphia. Numerous reports also were received of one or two adults emerging from potted plants in private residences.

Gypsy moth scouting reveals egg clusters in lightly infested Maine area.--Scouting was completed late in February of the towns of Benton and Clinton, in the lightly infested gypsy moth area and adjacent to the generally infested area of Maine. Twenty-four man-hours scouting in each town resulted in the collection of 848 egg clusters in Benton and 166 in Clinton. The work was performed by the district inspector stationed at Bangor. Owing to the heavy snow the inspector was obliged to do his scouting on snowshoes.

Eradication crews recruited to full strength.--By the middle of February organization of the Dutch elm disease eradication work in New Jersey, New York, and Connecticut had reached its maximum. P. W. A. eradication crews in the field at the end of the month numbered 55 in New Jersey, 50 in New York, and 30 in Connecticut. Assisting in the work were 8 C. C. C. crews in New Jersey and 20 crews supplied from C. C. C. camps in New York. This C. C. C. personnel totaled 439 men. Employed in P. W. A. eradication crews were 1,085 per-diem men and 64 appointed personnel. By the end of the month confirmed *Graphium*-diseased trees still standing had been reduced to 112, all in New Jersey. Dead and dying trees removed as a part of the winter's elm sanitation campaign totaled 98,588 on February 28. Continued scouting for dead and dying elms brought the total of this type of tree still standing to 239,941. Late in the month, rising water in swamp areas where concentrated elm populations were being rid of dead and dying specimens by C. C. C. crews necessitated emergency changes in work locations.

FOREST INSECT INVESTIGATIONS

Correlation proportion of favored food plants and gypsy moth infestation.--W. L. Baker, of the Melrose Highlands, Mass., field laboratory, submits the following regarding a study he has made of the correlation between proportion of favored food plants and intensity of gypsy moth infestation, based on observations made in New England during the period from 1912 to 1922 in 104 1/5-acre sample woodland plots. Each plot was visited once in the summer and once in the autumn. During the summer visit records of defoliation, tree by tree, were obtained and the tree losses were recorded. During the fall visit the number of egg clusters per acre was determined for each point. Because of tree loss during the decade the proportions of food plants in mixed stands were constantly changing. The records for each point have therefore been gone over and the proportion of favored food plants for each point tabulated year by year. The data have been arranged in a scale of ascending percentages of favored food plants.

Trees in favored food class	Average egg clusters per acre	Average defoliation of all trees
Percent	Number	Percent
0	1,522	8.0
0-10	1,787	6.8
10-20	1,955	9.7
20-30	2,957	13.4
30-40	3,639	16.3
40-50	3,906	18.0
50-60	3,361	15.5
60-70	3,659	27.9
70-80	4,132	27.2
80-90	7,914	32.4
90-100	3,954	32.2
100	9,901	32.5

The data in the above table show a very decided correlation between increase in percentage of favored food in the stand and increase in intensity of population.

New set-up in Dutch elm disease work at Morristown.--C. W. Collins, of the Melrose Highlands, Mass., field laboratory, spent several days in February at Morristown, N. J., in connection with the selection of a building to be used cooperatively by this Bureau and the Bureau of Plant Industry as headquarters for studies relating to the Dutch elm disease. A large residence with accompanying grounds at 8 Whippany Road, and greenhouse space on another property were leased for laboratory and office purposes. After the building has been put in readiness for occupancy and laboratory and office equipment placed, the members of the two Bureaus now stationed elsewhere at Morristown, and part of the present staff of the Melrose Highlands field laboratory, will move to the new headquarters, where members of the Bureau of Entomology and Plant Quarantine will continue work already in progress on insect transmission of the disease. Workers assigned to the new headquarters will be located there on or before April 15.

History of bark-beetle infestation shows value of control.--W. D. Bedard, of the Coeur d'Alene, Idaho, laboratory, reports on the history of a bark-beetle infestation in western white pine which illustrates the value of control work against the mountain pine beetle. The Canyon Creek drainage in the Blackfeet National Forest comprised approximately 6,300 acres of fine, accessible white pine timber, originally estimated at 34,500,000 b.f. In 1928 an infestation of the mountain pine beetle, which up to this time has been in a normal status in the area, suddenly increased. A survey placed the number of infested trees between 1,000 and 1,500. In 1929 the infestation increased to 6,100 trees. The next 2 years showed little change in the situation and it was not until 1932 that a decided decrease was recorded. A survey during the summer of 1934 showed that only a small spot of infestation remained of this once virulent epidemic. Although the infestation has had a natural decrease to normal conditions, it has destroyed approximately 70 percent, or 24,150,000 b.f., of the white pine in the area. Computing this on the basis of the minimum $4 stumpage for white pine, the total loss was $96,600. Had control been instituted in 1928 with maintenance control in 1929, approximately $80,000 of this loss would have been prevented.

Douglas fir beetle control.--In a recent report J. C. Evenden, Coeur d'Alene, summarizes the results of 4 years of control work against an outbreak of the Douglas fir beetle in the Cody Canyon of the Shoshone National Forest and attempts a prediction as to the future of the project. This operation was instituted in the fall of 1931 in Douglas fir stands severely weakened through previous defoliation by the spruce budworm. As a result of this operation, the infestation on the areas covered by control has been reduced from 12,038 trees treated in 1931 to 2,096 trees treated in 1934. No timber loss has occurred within the areas for which protection was especially desired. As the spruce budworm defoliated a much larger area than it was economically possible to cover by bark-beetle control, a considerable number of bark beetle infestations were left untreated. These untreated infestations have resulted in an annual reinfestation of the treated areas, requiring yearly maintenance control.

White-grub studies in forest nurseries.--Recently B. H. Wilford and H. R. Johnston, of the Asheville, N. C., laboratory, completed arrangements with State Forester H. A. Smith, of the South Carolina State Forestry Commission, to expand the white-grub investigations started last season in the nursery located at Georgetown, S. C. A section of the new nursery has been assigned to the Bureau to facilitate the life history and control studies now under way. The problem is an important one in the region, inasmuch as the life cycles are quite short and the beetles are in flight from March to August. Up to the present time most of the damage has been caused by only one or two of the many species which have been taken.

Inspection of C. C. C. projects in the Southeast.--B. H. Wilford and C. B. Eaton have just returned to Asheville after inspecting State and Federal C. C. C. camps in the Southeast to determine the relative importance of insects in slash in improved stands and along highways and trails, where cuttings in pine have been made. The data obtained substantiate previous findings that continuous cuttings can be made throughout the year with little danger of loss of timber from attacks of bark beetles. Here and there a few trees have been killed along highways and trails where the cutting was of short duration, but no significant injury was found in stands that had been improved by thinnings. It is expected that such work can be continued safely unless drought prevails.

GYPSY AND BROWN-TAIL MOTH CONTROL

Rope climbing facilitates gypsy moth control.--Since early in November, when the first training in the use of ropes for climbing was started, nearly all the members of the regular field force have been given instructions in handling ropes, and gypsy moth crews at 13 of the 18 C. C. C. camps engaged in moth work have also been given instructions. With the use of irons the distances men could go into the trees was limited by the size of the branches. After men become skilled in the use of ropes they can reach practically all parts of the trees readily and with safety.

Scouting in New England and Pennsylvania.--Scouting by members of the regular field force was performed in a number of barrier-zone towns in extreme southwestern Massachusetts and in northwestern Connecticut. In the former State some of this work was performed in areas that had not been examined for years. About 4,700 acres of woodland were scouted without finding any infestations. In the Connecticut area a considerable number of woodland acres were scouted, some small new infestations found, and additional egg clusters destroyed at infestations located previously. In certain sections there was a heavy accumulation of ice on the tree branches. A rapid rise in temperature caused the ice to loosen and fall in large pieces. In some localities this falling ice carried with it fragments of egg clusters, which, when carried to the ground, would be difficult to find. In the Pennsylvania infested area considerable scouting was performed in territory close to the spots where assembling cages attracted male gypsy moths during the summer of 1934, and some scouting was also done in areas found infested in past years. About 5,500 acres of woodland were scouted. In the course of this work and while the rough creosoting was being performed by a number of men in the more heavily infested parts of the area, about 6,700 gypsy moth egg clusters were destroyed.

Special survey continued.--The special survey work being performed by experienced Federal gypsy moth employees, in cooperation with the inspection forces of the different States, has been continued with satisfactory progress in the States of New York, New Jersey, and Pennsylvania. Federal employees have confined their work entirely to adjoining portions of the three States, endeavoring to survey as large a territory as possible before discontinuing the work this spring. Up to the end of February 52 townships and boroughs in New Jersey, 42 in New York, and 14 in Pennsylvania had been completed. Special survey report forms received from Ohio indicate that State inspectors have done a limited amount of this kind of work in that State, and the same is true concerning the State inspection force in Pennsylvania. No indications of gypsy moth infestations have been found in any of the States.

C. C. C. work in New England.--The gypsy moth work in 18 camps in New England, which is supplementing barrier-zone work, and being done east of the barrier zone, has continued throughout the month (February). During some of this period over 650 men have been used and much work has been accomplished. Since the first of July over 185,680 acres of woodland and open country have been examined; over 414,000 individual trees along roadsides, in pastures, and around buildings have been examined; 621 acres of woodland have been cleaned. Since the first of July 381,985 egg clusters have been creosoted as follows: 237,628 in Massachusetts; 76,626 in Connecticut; and 67,491 in Vermont.

PLANT DISEASE CONTROL

Informational work on barberry eradication in Iowa.--The informational work conducted in connection with the barberry-eradication program in Iowa during the past 3 years has proved an effective means of determining the nature and extent of the stem rust control problem in individual counties. The value of the work is twofold; first, it brings about an immediate reporting of properties or areas infested with barberry bushes; and second, it serves to build up a permanent cooperating personnel. The Iowa educational system has accepted the study of the stem rust of cereal crops on the basis of its supplementary value to courses offered in agriculture, nature study, and citizenship. In addition to the illustrated talks given by agents of the Bureau, materials are left with the teachers which will enable them to carry on the study of this disease during following years. The accompanying table shows by counties the number of properties infested with barberry bushes that have been reported or located as a result of the educational work during the last 3 years. Generally speaking, Iowa rural schools are not more than about 2 miles apart, therefore reports from an interested group of school children often give a fairly accurate indication of the eradication work necessary.

County	Properties	Bushes	County	Properties	Bushes
	Number	Number		Number	Number
Adams	9	40	Johnson	52	618
Allamakee	50	1,253	Linn	78	9,127
Audubon	4	21	Louisa	9	52
Benton	34	725	Mahaska	5	24
Boone	50	1,626	Polk	28	16,904
Cass	4	15	Poweshiek	27	89
Cerro Gordo	16	0	Scott	46	2,271
Clayton	20	942	Tama	24	375
Clinton	106	11,563	Wapello	4	15
Dallas	47	1,036	Warren	4	8
Dubuque	180	21,143	Winneshiek	116	4,751
Fayette	36	1,260	Worth	27	0
Franklin	3	0	Wright	4	0
Guthrie	54	1,415	Other	39	990
Hamilton	3	0	Total	1,083	76,265
Iowa	1	0			
Jasper	3	2			

The value of this type of work cannot be measured entirely by the number of infestations reported. Pupils learning about the work at school talk about it at home, causing the parents to become interested when other methods have failed. O. R. Shepherd, agent in charge of barberry eradication in Iowa, estimates that 70 percent of the barberry-infested properties reported by children in Iowa have been found through the help of their parents. He also reports that the crew work progresses much more smoothly in counties where extensive educational work has been done.

Ribes-eradication program effective in controlling blister rust.--Field surveys during the past season show that the *Ribes*-eradication program is effective in controlling white pine blister rust in the Inland Empire. Data were taken in five areas where initial *Ribes* eradication was performed in 1931 or before, and for comparison on four check areas where control work had not yet been undertaken. On the five areas where control work had been performed, 967, or 12.6 percent, of the 7,701 pines examined were infected prior to control, while only 46 trees, or 0.6 percent have become infected since, although the necessary follow-up operations had not been completed. On the four check areas 32 of the 1,135 pines examined, or 2.8 percent, were infected prior to 1930. An additional 318 trees were infected from 1930 to 1932, making a total of 30.8 percent of the pines infected, an increase of 28 percent. The increase of 28 percent of the pines infected is to be contrasted with the 0.6 percent of trees infected following *Ribes* eradication. This comparison is conservative in view of the fact that in the areas on which control work was performed, 12.6 percent of the pines were infected prior to control work, whereas in the check areas the infection started with only 2.8 percent of the trees infected at the time when Ribes-eradication work was performed on the control areas.

Western North Carolina appreciates its white pine.--A large number of residents in the Piedmont and mountain sections of North Carolina cooperated with the State and Federal Departments of Agriculture during the past year in the protection of the white pine from blister rust. White pine has been planted extensively in Asheville, Biltmore, Hendersonville, Flat Rock, Blowing Rock, Lenoir, and other places in the western part of the State, and is considered a decided asset to these communities. Native white pines are also numerous in some of these cities. When the property owners in these cities were told about the blister rust disease, 73 percent of them voluntarily gave up their cultivated currants and gooseberries to safeguard the pines, although the rust had not yet reached the State. Records of 762 owners having cultivated currant and gooseberry plants show that 556 cooperated in the removal of 85,230 cultivated bushes during the past year. This timely and effective cooperation resulted from personal contact and informational work among property owners, rather than from the enforcement of the State blister rust control law.

White pine shelterbelts in Iowa protected from blister rust.--During 1934 a substantial beginning was made in the protection of white pine shelter-belts in Iowa against blister rust. White pine is used extensively in the State as a shelterbelt tree, particularly in the northern half. It is considered the best all-round evergreen tree in the State and a three-purpose tree, serving equally well for beautifying the home grounds, as an effective shelterbelt tree, and as one of our fastest growing trees for timber production. In general, planted white pine makes excellent growth in the State, is a long-lived tree, and has a comparatively low mortality rate. On the basis of available preeradication-survey data, it is estimated that there are 55,000 coniferous shelterbelts in Iowa, of which approximately 7,500 are classified as white pine belts. During the past field season a total of 970 white pine shelterbelts in seven counties were listed for protection. Of this total, 776, or 80 percent, were given protection with the cooperation of the owners; 123, or approximately 12.7 percent, of the owners did not desire their shelterbelts to be protected, or valued their Ribes more; and 71, or 7.3 percent, of the shelterbelts were not considered worth the expense of protection. To protect the 776 shelterbelts it was necessary to examine 62,158 acres of land from which 211,448 wild Ribes and 11,053 cultivated Ribes were removed at a total cost of 454 man-days of labor. On the average, for each shelterbelt protected it was necessary to examine approximately 80 acres of ground and to pull 273 wild and 14 cultivated Ribes, at a cost of 0.58 man-day per shelterbelt. It is hoped that the remaining white pine shelterbelts in the State can be protected from blister rust before the disease becomes well established and causes serious damage.

COTTON INSECT INVESTIGATIONS

Parasites of the boll weevil in the Carolinas.--C. F. Rainwater, Florence, S. C., reports that in 26,923 weevil-infested cotton squares collected in 14 counties of eastern South Carolina during the summer of 1934, the following species of parasites were recorded: *Microbracon mellitor* Say, 730; *Eurytoma tylodermatis* Ashm., 33; *Zatropis incertus* Ashm., 13; *Catolaccus hunteri* Cwfd., 8; *Microbracon* n. sp., 8; *Triaspis curculionis* (Fitch), 4; *Rhoptrocentrus piceus* Marsh., 1; *Catolaccus kansensis* Gir., 1; *Microdontomerus anthonomi* Cwfd., 1; *Telenomus* sp., 1; and *Gonatocerus novifasciatus* Gir., 1. From 559 boll weevil-infested squares collected in September in three counties in southeastern North Carolina 15 *M. mellitor* were reared. As no egg parasites have been recorded from the boll weevil, *Telenomus* sp. and *G. novifasciatus* should not be so considered unless additional evidence is obtained to definitely associate them with the boll weevil. *R. piceus* and *C. kansensis* also should not be considered as boll weevil parasites without additional evidence.

Relation of pink bollworm damage to age of bolls attacked.--C. S. Rude and S. L. Calhoun, Tlahualilo, Durango, Mexico, report on studies on the nature of the damage caused by the pink bollworm and the age at which bolls become infested. During the period June 4 to October 12, 118,357 blooms were tagged, 67.6 percent of which were shed. No damage by pink bollworms was found in bolls that opened on or before August 21, or those that opened within approximately 1 month after the first infestation in green bolls was found. Bolls opening from September 19 to 25 were 53 percent infested, causing a loss of 4.47 percent in weight of cotton; bolls opening September 26 to October 2 were 77.4 percent infested, with a loss in weight of 24.55 percent, which later increased to 40.84 percent. The green boll examinations showed that a boll infestation of 10 to 20 percent, with an average of 0.15 to 0.4 larvae per boll, would result in considerable loss in weight of cotton and some "dead" locks, and that a 70-percent boll infestation with an average of 1.47 larvae per boll resulted in 7.25 percent "dead" locks. The grade of the lint was lowered one grade in slightly injured bolls and 3½ grades in badly injured locks. Likewise, the oil content of the seed was reduced from above 20 percent in noninfested seed to 17.8 percent in samples with 25-percent infested seed; to 14.6 percent in 50-percent infested seed; and to 7 percent in seed 95-percent infested.

Hemipterous insects on cotton in Arizona.--T. P. Cassidy and T. C. Barber have reported on their last season's work at Tucson and Buckeye, Ariz., on the species of hemipterous insects causing injury to cotton in that State. It was found from cage tests that *Euschistus impictiventris* Stal., *Chlorochroa* sp. (*sayi* Stal. or *uhleri* Stal.), and *Dysdercus mimulus* Hussey are largely responsible for the staining and lowering of grades of cotton in Arizona in recent years. Bolls of long staple of Pima cotton attacked by *Euschistus impictiventris* become hard and mummified and are practically ruined. The damage to short staple by this species is not so severe and, although the lint is stained, much of it is still pickable. With *Chlorochroa* sp. the damage is greater in short staple than in Pima cotton. The injury caused by *Dysdercus* *mimulus* is about the same to both long and short staple and is usually confined to one or two locks per boll. Because of their greater abundance, *E. impictiventris* and *D. mimulus* were responsible for most of the commercial losses last season, but *Chlorochroa* sp. would cause at least as much loss if it were as abundant. All of the species named have other host plants and there was little breeding on cotton. *Dysdercus* was able to maintain itself on cotton better than were the other species. A species of *Lygus* was abundant in the fields and, although this species fed on the bolls in cages, the feeding punctures were confined largely to the hulls of the bolls, causing no staining and little damage. It is suspected, however, that they cause shedding of the squares. The alfalfa leaf hopper (*Stictocephala festina* Say) was also very abundant on cotton but caused no damage to bolls. Neither *Lygus* nor *Stictocephala* bred in the cages. In the cages with *Euschistus*, *Chlorochroa*, and *Dysdercus* the bolls were set much later in the season and largely after the insects had become less active, as the nights became cooler in September and October. A survey of the damage in the five counties comprising the main cotton sections of Arizona was made during October. No attempt was made to differentiate the injury caused by the different Heteroptera. The percentage of punctured bolls ranged from 5 percent in Pima County to 58 percent in Yuma County, averaging 23.4 percent for the State. Cotton growers say that the damage is increasing year by year.

Insecticidal tests against Hemiptera on cotton.--Several insecticides were tested against Hemiptera in cages and in the field at Buckeye, Ariz. In the cage tests nine insecticides were used against *Lygus* sp., *Euschistus impictiventris*, *Chlorochroa* sp., and *Dysdercus mimulus*. The average percentages of control obtained for the four insects were as follows: Pyrethrum, 54.4; cube root, 34.5; sodium fluosilicate, 42.1; derris (4 percent rotenone), 37.2; lead arsenate, 25.8; flotation sulphur blend, 19.2; ground sulphur, 19.8 flotation sulphur, 15.9; and phenothiazine, 9.8. Results of the field-plat tests are shown in the following table.

Treatment	Location		Applications	Quantity applied per acre	Yield of seed cotton per acre	Increase in yield of seed cotton	
	Plat	Field	Number	Pounds	Pounds	Pounds	Percent
Sulphur--------------	1	A	6	32	1,323	189	16.7
Check---------------	2	A	--	--	1,134	--	--
Derris (4% rotenone)	3	A	6	27.5	1,285	151	13.3
Pyrethrum (Activated A dust)----------	4	A	6	25.5	1,436	328	29.5
Check---------------	5	A	--	--	1,108	--	--
Sodium fluosilicate-	6	A	6	40	1,625	517	46.6
Lead arsenate-------	1	B	4	15.5	2,217	453	25.7
Check---------------	2	B	--	--	1,764	--	--

PINK BOLLWORM AND THURBERIA WEEVIL CONTROL

Pink bollworm work in Florida.--Throughout February excellent progress was made in recleaning wild cotton areas in southern Florida. The Key West district was completed, with the exception of one or two small colonies, and the Key Vaca group was also completed. Because of unfavorable tides and low water, the Florida Bay section has been left somewhat spotted; however, the remaining areas can be easily worked as soon as conditions are favorable. The recleaning of Cape Sable was completed, with the exception of one small section. The Everglades section of Monroe County has also been completed. Most of the area remaining to be recleaned is in Collier County, from Naples southward. During the month approximately 1,943 acres were cleaned, from which 1,445 mature, 285,278 seedling, and 14,850 sprout plants were removed. Six hundred and ninety-two acres of virgin territory have been cleaned, 55,846 mature and 52,507 seedling plants having been removed. During the above clean-up 2,546 wild cotton bolls were inspected. On Bamboo Key, in the Key Vaca group, four pink bollworm larvae were found. Infestation was found on Cape Sable and, although no exact counts were made, the infestation was estimated at approximately 50 percent. This was in virgin cotton, located on the extreme east end of the cape. The areas covered are being thoroughly inspected to see that no plants are overlooked. During the month, 67 man-days of scouting resulted in the finding of several small colonies on the Key Vaca group and 14 scattered plants in Manatee County.

No pink bollworm found in Alabama.--At one of the Florida stations considerable material has been inspected from Houston County, Ala., immediately adjacent to one of the infested counties in Florida. A considerable quantity of cotton from this county was ginned in Florida last season and the negative results are especially gratifying.

Thurberia weevil in Arizona.--Through laboratory inspection of material collected, a light infestation of the Thurberia weevil has been discovered at Midvale, about 4½ miles southwest of Tucson, and another on the University of Arizona Experiment Farms, about 3 miles northwest of Tucson. These evidently did not occur until late in the season and would not have been found by gin-trash inspection. This makes four sections in which light infestations have been discovered in the 1934 crop. Laboratory inspections are being continued at San Antonio and also at a number of field stations, all results having been negative to date.

TRUCK CROP AND GARDEN INSECT INVESTIGATIONS

Outbreak of beet leafhopper in southern Idaho predicted.--According to a report submitted by J. R. Douglass, of the Twin Falls, Idaho, laboratory, conditions up to the end of February presage high spring and summer populations of the beet leafhopper in Twin Falls, Jerome, Minidoka, and Cassia Counties. The high spring population of 1934 was somewhat reduced by the abnormally dry summer weather. This reduction was partially offset, however, by an increase of summer host plants (Russian-thistle) on lands temporarily abandoned because of water shortage. As a result, fall populations were about normal and fall and winter host plants were sufficiently abundant to enable the beet leafhopper to enter the winter under favorable conditions. The winter has in general been favorable for survival, being comparable to that of 1930-31, which was followed by high leafhopper populations. Although a late spring could delay the migration into beet fields, high populations may be expected in beet-growing areas close to leafhopper breeding grounds.

Effectiveness of pyrethrum against celery leaf tier.--C. B. Wisecup and J. P. Vinzant, of the Sanford, Fla., laboratory, report that pyrethrum proved to be more effective for the control of the larvae of the celery leaf tier (Phlyctaenia rubigalis Guen.) than lead arsenate, synthetic cryolite, or derris. Newly hatched, quarter-grown, half-grown, and nearly mature larvae were used in the tests, but pyrethrum was not tested against the newly hatched larvae, because preliminary trials had shown conclusively that exceedingly dilute pyrethrum dusts were 100 percent lethal to such larvae. The dusts were applied to the leaves of the food plants with a precision apparatus. Pyrethrum containing 0.9 percent total pyrethrins was used undiluted and also diluted with 2, 4, and 8 parts of clay. Lead arsenate, cryolite, and derris-root powder were diluted with approximately 3, 10, 25, and 75 parts of clay. The derris-powder mixtures contained approximately 3.0, 1.0, 0.5, and 0.1 percent rotenone. Pyrethrum was found to be the most toxic material tested against all stages of the larvae and gave a satisfactory percentage of kill at all strengths tested. Cryolite was fairly effective at strengths of 1 to 3, and 1 to 10 against newly hatched larvae, and at a strength of 1 to 3 against the quarter-grown, half-grown, and nearly mature larvae, but the use of this material involved the hazard of a harmful residue on the market product. Lead arsenate at a strength of 1 to 3 was effective against the newly hatched and quarter-grown larvae, but was not effective against the half-grown or nearly mature larvae at any strength tested. Derris was the least effective of any material tested, no dilutions of this insecticide being satisfactory against larvae of any size. Tests are being continued with equal parts of pure pyrethrum powder and its diluent, the formula now recommended for leaf tier control.

Pea weevil infestation low in Palouse district.--T. A. Brindley, of the Moscow, Idaho, laboratory, reports that the average percentage of peas infested by the pea weevil in the Palouse district in northern Idaho and eastern Washington in 1934, as determined from an examination of 1,730 samples containing 85,183,400 pounds of seed peas, by the pea-grading service of the Bureau of Agricultural Economics, was approximately 3.95 percent. The data were obtained by examining 250-gram samples taken from every fifth bag of peas after they were delivered to the warehouse. During the 11-year period from 1923 to 1933, inclusive, the annual average percentage of infested peas in this section ranged from 20.0 to 3.2 percent, averaging for the period approximately 10 percent.

Salt-flotation effective in separating weevil-infested seed peas.--Mr. Brindley also reports that solutions of calcium chloride proved very effective in separating weevil-infested peas from noninfested peas by the flotation method. The best results were obtained with a solution having a specific gravity of 1.28. The efficiency of the separation was increased as the weevils increased in size, suggesting that separation could be accomplished more efficiently in commercial establishments if fumigation of the seed and separation of the infested peas by the salt-flotation method were delayed until most of the weevils had reached the pupal or adult stage. Although in the solutions of higher density a few of the noninfested peas floated off with the infested peas, this loss would be more than offset by the decrease in weevilly peas in the manufactured product. These results were more satisfactory than previous results obtained with sodium chloride.

Lima bean pod borer damages lima beans in California.--Rodney Cecil, of the Ventura, Calif., laboratory, reports that a survey was recently completed in nine warehouses at Ventura receiving lima beans from the 1934 crop. A total of 640,420 sacks, each containing 100 pounds of beans, were received at these warehouses. It is estimated that the loss incurred by the feeding of the pod borer on these beans, plus the cost of removing the damaged beans by machinery and by hand-picking, amounted to approximately $154,000. In general, beans that were grown in the small canyons and valleys near the wild host plants were more heavily damaged than beans grown in wide valleys and at greater distances from the wild host plants. The late-maturing beans were damaged more than the early ones.

Dust mixtures of derris and cube are equally effective against striped flea beetle, tests indicate.--Norman Allen, of the Baton Rouge, La., laboratory, reports that in preliminary tests dust mixtures composed of derris root and cube root, with finely ground tobacco dust and 300-mesh dusting sulphur as diluents, proved equally effective in controlling the adults of the striped flea beetle attacking young turnip plants. Each of these dust mixtures contained approximately 1 percent rotenone, diluted with equal parts of tobacco dust and sulphur. The dusts were applied with a rotary hand duster to dry plants in the afternoon, when the temperature was approximately 53° F. and the relative humidity approximately 55 percent. Examinations made from 22 to 24 hours after the applications revealed that the derris-dust mixture caused a mortality of 98.34 percent of the beetles and the cube-root-dust mixture a mortality of 98.43 percent. The cost of the cube-root mixture was approximately two-thirds that of the derris-root mixture.

Sulphur dust.. effective against eggs of Mexican mealybug.--H. H. Richardson, of the greenhouse-insects laboratory, Washington, D. C., in his studies of Phenacoccus gossypii T. and Ckll., has found that sulphur dust will kill a considerable percentage of the eggs. Two kinds of sulphur dusts were used: 300-mesh dusting sulphur, and a relatively new product of bentonite and sulphur. There was little difference in the efficiency of the two materials.

Low temperatures lethal to Mexican mealybug eggs.--Mr. Richardson has also found that the eggs are much more sensitive to temperatures of 40° F.

and below than are the older stages. After three successive nights with minimum temperatures ranging from 35° to 36° early in October, almost complete kill of eggs was obtained, whereas just before this only 3.9 percent of the eggs were dead. After a temperature of 19° on December 10, practically complete kill was noted and on February 8 after a month of low temperatures the kill was 100 percent. The older stages have been much more resistant than the eggs, and even after the low of 19° on December 10, the mortality was only 19.9 percent. However, after the extreme weather of January, with a minimum of -2°, the kill was 100 percent. The adults, pupae, and third-stage nymphs were much more susceptible to cold than were the first-stage and second-stage nymphs.

INSECTS AFFECTING MAN AND ANIMALS

Winter activities of screw worm flies.--Reports received from W. V. King, Orlando, Fla., state that screw worm cases have been quite numerous in that State but activities were checked by cold weather the last of the month. W. E. Dove, Savannah, Ga., reports infestations in several counties in southern Georgia and along the Alabama line during the winter. C. Lyle, Chief Entomologist, Mississippi State College and Agricultural Experiment Station, State College, Miss., says that infestations have been reported throughout the winter. The unusually severe weather in that section apparently has not stopped the activity of the flies. At Uvalde, Tex., a few cases of screw worms have been reported by ranchmen, but not so many in February as in January.

Hibernation of screw worms.--Studies on the hibernation of *Cochliomyia americana* Cushing and Patton, the primary screw worm, conducted at Dallas, Tex., by Roy Melvin, show that pupae placed in moist sand and exposed to outside temperatures in an open insectary on November 24, 1934, produced adult flies 54 days later when exposed to a temperature of 86° F. Mr. Melvin also reports that larvae of this species penetrated wet clay soil to a depth of 17 inches, and that the weighted mean depth of penetration in this type of soil was 7.77 inches. The weighted mean depth of penetration by *C. macellaria* Fab. in this same medium was only 1.35 inches. Hibernation studies of *C. americana* carried out at Uvalde, Tex., by R. A. Roberts show that of pupae buried under 4 inches of soil on January 19, approximately 37 percent produced adult flies 41 to 44 days later. The experiments were made under outside conditions. The lowest air temperature recorded for the period was 18° F. and the lowest temperature of the soil surrounding the pupae was 40°.

Eye gnats beginning to emerge.--R. W. Burgess, of the Uvalde laboratory, who has been working with species of *Hippelates*, reports that there has been a slow but continuous emergence during the month in the Winter Haven and Crystal City, Tex., districts. The Coachella Valley in California has also reported an unusually severe outbreak of this pest. Doctors in this region are concerned on account of the danger of an epidemic of eye infection, a disease carried by this insect.

New talkie on mosquitoes released.--L. O. Howard introduces the new sound picture on mosquitoes which has just been released by the Office of Motion Pictures of the Department. The film covers in two short reels the life histories and methods of control of some of the more important species. Much of the film is taken from the silent version, but new pictures, such as that of the great reclamation work on the Pontine marshes near Rome, have been included. The closing feature reproduces the buzzing of a swarm of mosquitoes. The film was shown at the New Jersey Antimosquito Convention and was highly commended.

FOREIGN PLANT QUARANTINES

Recent entomological interceptions of interest.--Twenty-two living larvae of the Mediterranean fruit fly (*Ceratitis capitata* Wied.) were intercepted at New York in four sorbe apples (*Sorbus domestica*) in baggage from the Azores. Quinces in baggage from three countries were found to be infested with the Mediterranean fruit fly in 1933 as follows: Larvae from Portugal intercepted at Providence, R. I., on October 20; larvae from Greece at New York on November 1; and larvae and pupae from Italy at New York on November 9. A living specimen of *Ligyrocoris aurivillianus* Dist. was taken at Nogales, Ariz., on a tomato in cargo from Culiacan, Sinaloa, Mexico. Larvae of the carrot rust fly (*Psila rosae* Fab.) were intercepted at Philadelphia in a celeriac (*Apium graveolens rapaceum*) root in stores from Sweden. This is a European psilid common in eastern and middle North America and also reported from Oregon. A living adult of the scarabaeid *Pleurophorus parvulus* Chev. was found at Mobile, Ala., on a banana stem in cargo from Honduras. Six living larvae of *Psylliodes chrysocephala* L. were intercepted at New York in two radish roots in stores from Denmark. A. G. Böving reports that radish is an unusual host plant for this leaf beetle. The coccid *Tylococcus giffardi* Ehrh. was taken at San Francisco on a seed of *Pandanus* sp. in baggage from Hawaii. A living larva of *Collabismodes cubae* Boh. arrived at New Orleans in a pepper fruit in cargo from Cuba. This weevil has been reported attacking peppers in Dade County, Fla. The scale insect *Furcaspis oceanica* Lindinger was taken January 8, 1934, at Honolulu, Hawaii, on a coconut in the mail from the Marshall Islands, the first record in our files of this coccid being intercepted. Three living larvae of the bean pod borer (*Maruca testulalis* Geyer) arrived at Laredo, Tex., in string-bean pods in cargo from Cuauhtemoc, Tamaulipas, Mexico. This is the first record in our files of this olethreutid being intercepted from Mexico. This insect has been taken on numerous occasions from Cuba, and has also arrived from China, Dutch Guiana, Haiti, Hawaii, Japan, Puerto Rico, and Tahiti. The chrysomelid *Lactica mexicana* Jacoby was intercepted at San Pedro, Calif., with bananas in cargo from Panama. One larva and two pupae of the celery fly (*Acidia heraclei* L.) were found at Philadelphia in the stems and leaves of celery in stores from Italy. This trypetid mines the leaves and stems of celery, parsnip, and other plants in Europe, causing considerable injury.

Correction.--In News Letter for February 1, 1935, (vol. 2, no. 3) the interception of citrus blackfly reported was made in New York, not at Philadelphia as stated.

Recent pathological interceptions of interest.--*Anguillulina pratensis* (de Man) Goffart was intercepted in potatoes from Argentina at New York on February 16 and 17, at New Orleans on February 18, and at Port Arthur, Tex., on February 22. One tuber intercepted at New York was so heavily infested that atrophy was very pronounced. This pest has been intercepted from Argentina once every year since 1931. *Apiospora* sp., similar to *A. striola* (Pass.) Sacc. but with much larger spores, was intercepted on lemon grass from Jamaica on January 21 at New York. *Brachysporium* sp., unlike any species of which descriptions could be found, was intercepted on February 7 at New York in melons from Argentina. Azaleas from Belgium were intercepted at the Washington inspection house on December 14 and found affected with a *Cercospora* which has been tentatively determined as *C. handelii* Bubak by Dr. Charles Chupp, who states that this species and *C. rhododendri* Marchal and Verplanche are variable, very much alike, and may be synonymous. Our second interception of *Cerotelium desmium* (B. & Br.) Arthur was made on February 21 at New Orleans, the host being cotton leaves from Martinique, French West Indies. *Cladosporium aphidis* Thum. was intercepted (first interception) on February 14 at New York on scales on nectarines from Chile. *Gloeosporium piperatum* E. & E. was intercepted (first interception) on December 28, 1934, at New York on hot peppers from Java. *Gonatobotrys flava* Bon. was intercepted (first interception) on *Isaria* sp. larvae in broomcorn from Hungary, on February 7 at New York. *Melanconium sacchari* Massee was intercepted on *Saccharum arundinaceum* for the first time, on material from the Philippines, on January 14 at New York. A well-marked case of mosaic on a green pepper from Cuba was intercepted at New York on February 25, the first interception of the kind on this host. *Mycosphaerella* sp., intercepted at the inspection house in Washington on September 7, 1934, on *Opuntia* (?) sp. from Mexico, is our first interception of this genus on cactus and appears to be a new species. Our second interception of *Peronospora schleideni* was made on February 2 at Baltimore on leeks from Japan. Our first interception of a *Pestalozzia* on *Musa* was made on January 28 at New York on banana leaves from Puerto Rico. Although unlike any species reported on *Musa* it is being carried as *P. guepini* Desm. (pro tem). *Phoma* sp. (? *P. hibiscicola* Gz. Frag.) was intercepted at New Orleans on January 7 on okra from Cuba, our first interception of a *Phoma* on this host. *Phyllosticta globuli* Pass. was intercepted (first interception) on January 31 at Seattle on eucalyptus leaves used as packing around dahlia tubers from Australia. *Thielavia* sp. was intercepted on kudzu root for the first time on January 29 at New York in cargo from China. Our second interception of *Tranzschelia pruni-spinosae* (Pers.) Diet. on peach was made on February 16 at Baltimore on fruit from Ecuador. The previous interception was in 1922 from Chile. Our first interception of *Vermicularia cacti* (S.) Starb. was made on February 18 at New York on *Opuntia* sp. from Puerto Rico.

Pest interceptions increase.--The number of interceptions has shown a marked increase during the past 5 years, from a total of 5,148 for the fiscal year 1930 to 25,305 for 1934. The present fiscal year shows continued increase, the interceptions for the first 8 months (July 1934 to February 1935) totaling more than the entire 12 months of 1934. More pest interceptions were made in February 1935 (4,584) than in January and February

1934 combined (4,476). While much of the increase is due to increased activity at New York, ports in general are maintaining a high average. In keeping with the increase in the volume of interceptions, there has been a marked increase in the number of new or unusual organisms found, as a study of the News Letter notes will show.

Pink bollworm accompanies cottonseed cake.--A shipment of 1,344 bags of cottonseed cake, ground in Japan and entered at New York February 1, was found on inspection to have whole cottonseeds on the outsides of many bags, under the fiber ties, adhering to the fabric, or in the tied top. Altogether about 1 pound of these seeds were present on this shipment and approximately another pound had fallen off and mixed with debris on the wharf. The latter lot was promptly burned with the debris, and the collected lot yielded upon examination 10 live and 4 dead larvae of the pink bollworm. A second lot of 5,000 bags in the same consignment was free from such contamination.

Mediterranean fruit fly found in grapefruit.--Larvae and pupal cases of the Mediterranean fruit fly were intercepted at Philadelphia on February 6 with grapefruit in ship's stores from Haifa, Palestine. This represents the first record in our files of this fruit fly being intercepted from Palestine and also our first record of its being intercepted in grapefruit from any foreign country.

European corn borer found in corn cobs.--A living larva of the European corn borer was found on January 30 in a corn cob arriving in a shipment of 262,991 bushels of shelled corn from Roumania and Yugoslavia on a Greek vessel. The corn was cleaned at the port and several bushels of corn cobs from it were examined. Evidence of corn borer injury was found but only this one larva was discovered. The corn from the two countries was mixed in the hold, and it was not possible to determine the source from which the borer came, although it is known in both countries. There is no previous record of its interception from either country in our files.

Ship's officers cooperate with inspector.--A note from the inspector at Charleston, S. C., says, "I have found that a great percentage of unusual plants and plant products at this port are carried on Japanese ships. In some cases I have been in doubt about the correct scientific or common names of some of the plants or plant products. Usually, one of the officers has a large Japanese-English dictionary, and is able to assist in arriving at the correct name by referring to the Japanese name. Then by referring to Bailey's Encyclopedia, I have been able to find a complete description."

Inspector gets perfect tip.--While waiting for the customs searchers to report from below decks, an inspector assigned to the SS Evangeline, which arrived February 16, 1935, at New York from a West Indies cruise, was examining passengers' quarters on an upper deck. One of the crew came by with a suspicious-looking basket in hand. In passing he turned to another member of the crew and asked, "Are the 'Philistines' still below?" The inspector stepped forward and replied, "Boy, the 'Philistines' are upon you! I'll take those mangoes."

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Importer appreciates service.--A letter from an importer says, "I wish to thank you for the courtesy you have shown to me in the past. You have done me many favors which I greatly appreciate. In fact it seems the entire Agricultural Department from Federal to State and county are always ready to meet the public more than half way and always in a very courteous way. Last October when I made a trip to Lower California, I by accident brought back more plants than my permit called for. As I was wondering what plants I would throw away, a special amending permit came along, which allowed me to bring all the plants in. One who has never gone through the hardships of collecting cannot realize what a favor like this means to the importer."

DOMESTIC PLANT QUARANTINES

Transit inspection of spring nursery-stock shipments.--The inspection of mail, express, and freight shipments in transit for compliance with Federal plant quarantine requirements is under way at Atlanta, Boston, Chicago, Cleveland, Detroit, Indianapolis, Jacksonville, Kansas City, New York, Omaha, Philadelphia, Portland, Oreg., St. Paul, Seattle, Spokane, and Washington, D. C. The force of 28 inspectors engaged in the work for the spring nursery-stock shipping season is made possible through the temporary assistance of 9 Federal inspectors assigned from such projects as those relating to white pine blister rust and the European corn borer, and of State inspectors of Florida, Georgia, Illinois, and Missouri. During February, a month when shipping is light, 30,000 shipments were inspected, and 48 apparent infringements of the various quarantine regulations were found.

Citrus trifoliata in Galveston area destroyed.--Inspection activities were carried on extensively in Galveston County, Tex., during February, the area inspected embracing several towns and vicinities along the bay and including three abandoned nurseries containing numerous Citrus trifoliata. Owing to the high susceptibility of this species to the citrus canker, these trees are being destroyed with the cooperation and assistance of the owners. During the month, 959 such citrus trees, growing on roadsides, vacant lots, and places remote from roads, as well as in nursery blocks, were destroyed in the course of inspection work. Inspections were also made in Brazoria and Victoria Counties, Tex., without finding the disease.

Citrus canker inspection in other States.--In Mississippi the inspection of 387 properties in four counties in the southern extremity of the State resulted in finding no citrus canker in nursery stock, groves, or abandoned trees. One Federal and one State inspector are engaged in the work on full time, and a second State inspector on part time. In Alabama one inspector, employed on a cooperative basis, has begun the search for any undiscovered incipient infections that may exist in areas formerly known to be infected. Work in Louisiana has been concentrated on the inspection of fruit being shipped from the commercial areas in southern Louisiana, as a ready means of detecting any citrus canker that might exist in the groves. None has thus far been found during the fall and winter inspections.

State action on narcissus inspection.--The revocation of the narcissus bulb quarantine, effective April 1, left the States free to act in placing any restrictions which seemed desirable. Word is received that the State of California will, for the present at least, permit entry of narcissus bulbs subject to destination inspection the same as other plant material; that in Maryland and Pennsylvania the inspection of narcissus plantings will be continued as part of the general nursery-inspection program; and that in Mississippi it is unlikely that any regulation will be placed affecting the movement of narcissus into or within the State. The Central Plant Board discussed the subject briefly at its meeting at Urbana, Ill., on February 27. The committee's recommendation that these States continue for a year the inspection and certification of narcissus bulbs for movement interstate, without special quarantine action, was lost because of a tie vote. While the matter was left in a somewhat uncertain status, it seemed clear that officers of the Central States would not promulgate special quarantines nor make special requirements as to inspection or certification of these bulbs.

CONTROL INVESTIGATIONS

Rapid method for determination of pyrethrin II.--H. L. Haller, of the Insecticide Division, has developed a rapid method for the determination of pyrethrin II, one of the two active insecticidal constituents of pyrethrum flowers. By this method an analysis for pyrethrin II can be completed within 1½ hours, whereas the methods now in use require from 4 to 24 hours. The annual consumption of pyrethrum flowers in the United States for insecticidal purposes is estimated at 10,000,000 pounds.

BEE CULTURE

Are bees poisoned by yellow jessamine?--C. E. Burnside, of the Somerset, Md., laboratory, reports having examined young adult bees from Georgia whose intestinal tracts were well laden with pollen from yellow jessamine. The beekeeper who sent the sample of bees reported that the young bees were dying in excessive numbers. It has frequently been observed in some sections of the South that many young bees die during the time of year when this plant is in bloom, indicating that the pollen or nectar from this plant may be poisonous. The bloom of yellow jessamine is reported to be unusually abundant in Georgia this year.

IDENTIFICATION AND CLASSIFICATION OF INSECTS

A mite on boxwood.--H. E. Ewing reports the third record for the United States of Eutetranychus latus (Can. & Fanz.) in the identification of specimens collected on boxwood at Arlington Farm, Va., on March 6, 1934, by H. H. Richardson.

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The host of Helorimorpha.--Among a small number of parasitic Hymenoptera presented by R. H. LePelley, Entomologist of Kenya Colony, for deposit in the national collection, are two specimens of Helorimorpha coffeae Brues reared from adults of the pentatomid Antestia lineaticollis Stal. This record is of unusual interest, as nothing has previously been known concerning the habits and host associations of any member of this widely distributed braconid genus.

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